

Date: Friday, 4/18/2008 11:52:22 AM  
 User: Chantal Lavoie

## Process Sheet

<b>Customer</b> : CU-DAR001 Dart Helicopters Services	<b>Drawing Name</b> : ROUND BILLET 17-4
<b>Job Number</b> : 38689	
<b>Estimate Number</b> : 10041	
<b>P.O. Number</b> :	<b>Part Number</b> : D6104007
<b>This Issue</b> : 4/18/2008 <b>S.O. No.</b> :	<b>Drawing Number</b> : D6104 REV B
<b>Prsht Rev.</b> : NC	<b>Project Number</b> : N/A
<b>First Issue</b> : / / <b>Type</b> : MACHINED PARTS	<b>Drawing Revision</b> : B
<b>Previous Run</b> : 38212	<b>Material</b> :
<b>Written By</b> :	<b>Due Date</b> : 4/30/2008 <b>Qty:</b> 10 <b>Um:</b> Each
<b>Checked &amp; Approved By</b> : <u>JLD 08.4.18</u>	
<b>Comment</b> : Est. A: 01.05.08 New Issue EC	

## Additional Product

Job Number:



<b>Seq. #:</b>	<b>Machine Or Operation:</b>	<b>Description :</b>
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1.0	PG	PURCHASING
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**Comment:** PURCHASINGIssue P/O: 60184C 08/04/21

a) Description: S.S round billet

b) Ø4.50" x 5.10" long

c) Tolerance on all dimensions are +0.030"/-0.000"

d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630)

(10)

e) One blank makes 2 parts

f) Material certification required

2.0	D6104007P	17-4 SS Roundbar 4.50"OD
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**Comment:** Qty.: 1.0000 Each(s)/Unit Total: 10.0000 Each(s)  
 17-4 SS Roundbar 4.50"OD

3.0	PACKAGING 1	PACKAGING RESOURCE #1
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**Comment:** PACKAGING RESOURCE #1

Receive &amp; Inspect For Transit Damage

Ensure material certification is attached

P 4/5/5

(10)

4.0	QC6	DIMENSIONAL CHECK
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**Comment:** DIMENSIONAL CHECK

Ensure Material certification comply to Dwg D6104

08/05/09 (10)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Friday, 4/18/2008 11:52:23 AM  
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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: ROUND BILLET 17-4

Job Number: 38689

Part Number: D6104007

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: CNC

28 08/08/15

6.0

QC21

FINAL INSPECTION/W/O RELEASE



08/05/15

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



u 08/05/14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

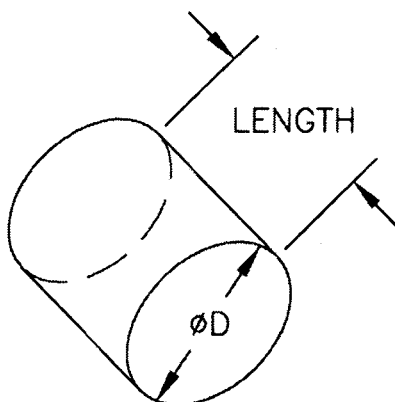


DESIGN TIF	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED

02.11.25

## SPECIFICATION CONTROL DRAWING



MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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C208/04118

W10: 38689

SP 425 50-A



P.O. BOX 977  
SYRACUSE  
NEW YORK 13201

# CERTIFICATE OF TEST

A H CASTLE, INC 3400 N WOLF RD FRANKLIN PARK, IL 60131		S H I P O A H CASTLE, INC 3400 N WOLF RD FRANKLIN PARK, IL 60131		OUR ORDER NO. S-16728-7-01	
CUSTOMER ORDER # & DATE 01-38009		CUSTOMER REQ. #		DATE 03/07/08	
DISTRICT B PARSONS		SHIPPED FROM SYRACUSE			

## DESCRIPTION OF MATERIAL

## SIZE

CRU 17-4PH RT A IAC 14998 4.500 RB MIN+.031/.0  
AMS-3174-02 REV 26 AMS-564-02ED T630 ASYM-AS64-04 T630  
AMS-2303E AMS-5643R (EX SURF) AISI 630 UNS-S17400

## CHEMICAL ANALYSIS

## HEAT NO.

HEAT NO.	C	MN	P	S	SI	NI	CR	MO	CU	CO	TA
A19606	.046	.46	.036	.019	.60	4.18	19.23	.14	3.21	.29	.012

CASTLE METALS CORP.  
DATE RCVD 3/12/08  
IAC 14998  
APPROVED BY

## MECHANICAL PROPERTIES

## QUANTITY

## HEAT NO.

QUANTITY	HEAT NO.	TENSILE PSI	YLD. 2% PSI	ELONG4D	RED/AREA%	HARDNESS BHN 307
2991 & A19606		209,790	162,790	13.9	81.2	94H 415

CAPABILITY PHYSICALS AFTER 900 DEG. F. - 1 HR. AIRCOOL:  
209,790 162,790 13.9 81.2 94H 415

— MICRO TEST OK  
MICRO TEST OK  
FERRITE 3 %  
MAGNAPLEX F/S = 0/0  
ELECTRIC FURNACE ADD BELTED  
REDUCTION RATIO: 14.6:1

MATERIAL SOLUTION TREATED AT 1900 DEG. F. HELD 2 HOURS AT TEMPERATURE —  
AIRCOOLED:

CRUCIBLE MATERIALS CORP. VENDOR #18610.  
MATERIAL INGOT CAST.

NAFTA - YES

MATERIAL FREE FROM MERCURY CONTAMINATION AT TIME OF SHIPMENT  
NO WELD REPAIR PERFORMED  
MATERIAL MELTED IN U.S.A.

THANK YOU FOR SELECTING A QUALITY PRODUCT  
MANUFACTURED BY THE EMPLOYEES OF CRUCIBLE SPECIALTY METALS 1W

SWORN TO AND SUBSCRIBED BEFORE ME THIS

DAY OF , 20

NOTARY PUBLIC

I. J. WOODSON - QUALITY ASSURANCE REPRESENTATIVE

CERTIFIED  
BY:

QUALITY ASSURANCE REPRESENTATIVE

THE ABOVE MATERIAL WAS MANUFACTURED AND TESTED IN ACCORDANCE  
WITH ABOVE SPECIFICATIONS AND IS IN CONFORMANCE WITH THOSE  
SPECIFICATION REQUIREMENTS.

CRUCIBLE MATERIALS CORPORATION  
ACTING BY AND THROUGH ITS SPECIALTY METALS DIVISION